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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEE, RIP A

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,549

Applicant(s)

GRABAU, TED D.

Examiner

Rip A. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 3-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 13-33 is/are rejected.
- 7) ☒ Claim(s) 1, 20 and 27 is/are objected to.
- 8) ☒ Claim(s) 1-33 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12-15-03; 03-10-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12, drawn to a vulcanizable rubber composition, classified in class 525, subclass 331.9.
 - II. Claims 13-16, drawn to a fabric reinforced rubber article, classified in class 428, subclass 521.
 - III. Claims 17-33, drawn to an actuator diaphragm, classified in class 92, subclass 96.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a tire component, a hose or rubber mat, and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant

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case, the combination as claimed does not require the particulars of the subcombination as claimed because the diaphragm may be made of rubber reinforced fabric instead of the composition alone. The subcombination has separate utility such as a tire component or rubber article.

4. Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the diaphragm may be made of molded rubber not bonded to fabric. The subcombination has separate utility such as a tire component or rubber article.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group III, restriction for examination purposes as indicated is proper.

8. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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9. During a telephone conversation with Richard H. Anderson on February 25, 2005, a provisional election was made with traverse to prosecute the invention of group III, claims 17-33. Applicants requested prosecution of article claims 13-16 from which claims 19-23 and 26-30 depend. The examiner also notes that claims 18 and 25 depend from composition claim 2.

In light of claim dependency, this office action includes prosecution of claims 1 and 2 (composition), 13-16 (fabric reinforced rubber article), and 17-33 (diaphragm). Claims 3-12 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Affirmation of this election must be made by applicant in replying to this Office action.

Specification

10. The abstract of the disclosure is objected to. The last sentence of the abstract, "Ranges may be expressed...particular value" adds nothing to the description of the invention and may be deleted.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1, 2, and 13-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17-23 recite the relative term "major surface," which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 1, 2 and 24-33, which depend from or contain subject matter encompassed by claims 17-23 are subsumed under the rejection.

Claim Objections

13. Claim 1 is objected to because of the following informalities: The term “a filler” in line 5 of the claim may be replaced simply with silica (*i.e.*, silica in the amount of about 10 to about 80 pw...). Qualifying the term “filler” in line 7 (*i.e.*, another filler, a second filler) would render the claim less vague to the reader. Appropriate correction is required.

14. Claims 20 and 27 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 19 and 26. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 1, 2, 17, 18, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotter (U.S. 5,323,750) in view of Wolff *et al.* (U.S. 4,278,587).

Rotter discloses spring biased diaphragm 75 operatively interconnected to actuating lever 64 in Figure 2. As seen in the figure, actuating lever is in communication with components capable of opening and closing valve 30. Also, pneumatic pressure exerted against the diaphragm results in opening of inlet valve 77. The reference is silent with respect to the material used for the diaphragm.

Wolff *et al.* teaches a vulcanizable rubber composition comprised of nitrile butadiene rubber, NBR, (37 wt % nitrile), silicate filler, metal oxide, 0-100 pw of plasticizer, 0.1-20 pw of coupling agent, and 0.1-10 pw of vulcanizing agent (see abstract) which is suited for making seals and other articles requiring resilience and heat/chemical resistance (col. 1, lines 33-35).

One of ordinary skill in the art, having both references at hand would find it obvious to arrive at the subject matter of the instant claims by using the vulcanizable rubber composition taught in Wolff *et al.* as the diaphragm material disclosed in Rotter because such a material would also require resilience and heat/chemical resistance. Absent any showing of criticality of the generic and unexceptional rubber composition recited in the claims, the combined teachings would have suggested to one of ordinary skill in the art to use the composition of Wolff *et al.* in the assembly shown in Rotter.

18. Claims 13-16 and 19-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotter in view of Wolff *et al.* as applied to claims 1, 2, 17, 18, and 33 above, and further in view of Hisada (U.S. 3,834,231).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. The references do not disclose use of a fabric reinforced diaphragm, as recited in the instant claims. Hisada shows that diaphragms are formed from a cloth or fabric which has been coated on both sides with oil resistant elastomer such as vulcanized NBR to make the fabric impermeable (col. 5, lines 13-17 and 60-66). The fabric which is typically employed for this purpose is polyamide or polyester (col. 5, lines 10-12). Diaphragms of this type exhibit better performance in terms of resilience compared with

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conventional diaphragms (col. 9, lines 22-33 and 47-50). One of ordinary skill in the art would have found it obvious to use a fabric reinforced NBR elastomer as the diaphragm material in the apparatus shown in Rotter because the lifetime and operability of the diaphragm would be improved. Since Hisada demonstrates that this is the case, one of ordinary skill in the art would have expected such a modification to work. The subject matter of claims 24-30 is obvious over Hisada because the reference teaches securing diaphragms to a metallic surface, *i.e.*, a flange, by adhesive means (claim 5). Since this is taught in the prior art, one of ordinary skill in the art also would have found it obvious to attach the diaphragm to the flange of the apparatus shown in Rotter.

19. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotter in view of Wolff *et al.*, and further in view of Hisada and Hansen *et al.* (U.S. Patent No. 4,022,114).

Hisada does not indicate the nature of the adhesive used for attaching the diaphragm to the flange. Hansen *et al.* shows that conventional adhesives such as epoxy resin works well for adhering materials to diaphragms made from synthetic elastomers (col. 8, lines 24-26). Thus, one of ordinary skill in the art would have found it obvious to use epoxy resin as the adhesive material in the Hisada embodiment and thereby arrive at the subject matter of the instant claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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August 30, 2005



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